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## Dihybrid Crosses

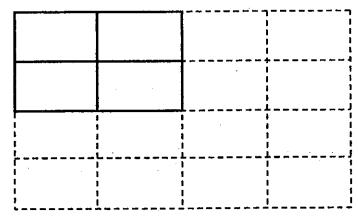
Gregor Mendel, the father of modern genetics, discovered that in pea plants the gene for round seeds (R) is dominant to the gene for wrinkled seeds (r). He also discovered that yellow seed color (Y) is dominant to green seed color (y). He then made the following cross:

	$\mathbf{p}$		RRYY	X	ттуу		
1.	What would be the geno	type for all the	F <sub>1</sub> offspring? _				
2.	What would be the phen	otype for the l	F <sub>1</sub> offspring?				
3.	Show Mendel's F <sub>1</sub> cross	below. (See th	ne answer to ques	tion#	1.)	•	
	<u>_</u>			·.			
	$\mathbf{F_1}$	-	Male		$\mathbf{X}$	Female	
4	What are the 4 possible a	rometer (nollet					
4.	what are the 4 possible §	sameres (poner	r grants or eggs)	u Oin u	itese piai	1131	
5.	Complete the Punnett sq	uare of this cre	oss below				
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	What are the change of	having offensin	or with round wel	low of	ado?	<del></del>	•
6,	What are the chances of What are the chances of	-					
7. 8.	What are the chances of		•	Ħ.	ДЗ:		
9.	What are the chances of	_	•	1.			
	What are the chances of			i.	e vellow	seeds?	
	Taxonia in Some Charlet Control		· · · · · · · · · · · · · · · · · · ·	, <u></u>	<u>.</u> , • 10		
***************************************	numans free earlobes (E) is o		ched earlobes (e), a	nd ton	gue rollin	g (R) is dominant to no	on-rolling (r).
11.	What are all the possible	e <b>genotypes</b> of	a person with fre	ee earl	obes who	o can roll his tongue	?
12.	What is the <b>genotype</b> of	a girl with atta	ched earlobes bu	t she c	annot ro	ll her tongue?	
13.	What are all the possible	e <b>genotypes</b> of	a person with fre	e earl	obes who	o cannot roll her ton	zue?

cats, the gene for black fur (B) is dominant to the gene for brown (b), and the gene for short hair (S) is ominant to the gene for long hair (s). Complete the Punnett square below for the following cross:

BBSs X Bbss

int: If you're clever, you ill only need to use four of ie boxes!



4. What proportion of the offspring from the cross shown above would be expected to be black with short hair?

In tomato plants, the gene for purple stems (A) is dominant to the gene for green stems (a), and the gene for red fruit (R) is dominant to the gene for yellow fruit (r). If two tomato plants heterozygous (AaRr) for both traits are crossed, state what proportion of the offspring are expected to have:

5. red fruit	16. green stems and red fruit _	
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You may want to draw a 16-box Punnett square.

7. purple stems and red fruit \_\_\_\_\_

If 640 seeds resulting from the above tomato cross are collected and planted, how many would be expected to grow into plants with:

8. purple stems and yellow fruit? \_\_\_\_\_\_ 19. green stems and yellow fruit? \_\_\_\_\_

0. green stems and red fruit?

You are a geneticist working for a large seed company. One of your colleagues is fired before she can finish ome important experiments she was working on. The company president has turned this project over to you. all you know is that your former colleague was working with a rare type of flower that comes in two colors, red nd blue and that the plant has either a short stem or a long stem. You do not know which traits are dominant or ecessive; however, you do have a bunch of these plants that have red flowers and long stems that you can cross. After many months of work, you finally print up the results of your crosses.

	Red/Long	Red/Short	Blue/Long	Blue/Short
Trial 1	2140	713	714	240
Trial 2	1006	336	335	110
Trial 3	874	292	291	100
Trial 4	866	289	289	100
Trial 5	739	248	244	80

1. Which traits ar	probably	dominant?
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2. Which traits are probably recessive?

3. Do you think that the original plants that you were given were heterozygous for both traits?

4. Why do you say this?